CITY OF ALBUQUERQUE RFB2006-166-SB
DOUBLE-BOILER CRACK SEALANT MACHINE
PAVEMENT SEALANTS & SUPPLY

AGENCY: _____

DEPARTMENT: _____

DIVISION: _____

REQUISITION #: _____ PO #: _____

DESCRIPTION:	Double-Boiler Crack Sealant Machine	MAKE:	Crafco
VENDOR:	Pavement Sealants & Supply	MODEL:	44100 Supershot 250 Gallon Diesel Melter/Applicator
BASE COST PER UNIT:	$ 42,500.00		

Standard Specifications

1. General
   - 1.1. The purpose of these specifications is to describe a double-boiler type melter applicator that is specifically designed for and shall be capable of heating and applying all grades of asphalt rubber sealant, fiber modified asphalt sealant and specification joint sealant without further equipment modification.
   - 1.2. Unit may also be used for the application of resinous, colored sealant and fillers.
   - 1.3. This unit shall be the manufacturer's current production model.
   - 1.4. The machine shall be capable of starting at ambient temperature and bringing the sealant material up to application temperature in one hour or less.
   - 1.5. The material should be heated in a kettle or melter constructed as a double boiler, with space between the inner and outer shells filled with oil or other heat-transfer medium.
   - 1.6. Thermostatic control for the heat-transfer medium shall be provided and shall have sufficient sensitivity to maintain sealant temperature within the manufacturer's specified application temperature range.
   - 1.7. Temperature indicating devices shall be intervals no greater than five degrees Fahrenheit (50F) and shall be calibrated as required to assure accuracy.
   - 1.8. The melter shall have continuous sealant agitation and a mixing system to provide uniform viscosity and temperature of material being applied.
2. Required Safety Features
   - 2.1. The unit shall have a safety shut-off on the lid that automatically stops the agitator when the lid is opened.
   - 2.2. The applicator wand shall be equipped with an automatic shut-off feature that will stop the flow of sealant when the handle is released or dropped.
   - 2.3. The sealant line pressure will automatically cease when the sealant flow is stopped.
   - 2.4. The operator shall not be required to perform any additional activity other than releasing the wand trigger switch to cease sealant line pressure.
   - 2.5. There shall be no valves in the line to allow interruption of sealant flow from the pump to the wand end.
   - 2.6. The heat transfer oil shall adequately and efficiently bring the sealant material to application temperature without the use of a heat transfer oil circulation pump. This eliminates the potential exposure of personnel to pressurized hot heat transfer oil.
3. Towing Frame & Jack
   - 3.1. This unit shall be trailer mounted.
   - 3.2. The longitudinal side frames and tongue members of the trailer shall be one continuous piece construction composed of hot rolled steel channel having the minimum dimensions of 5 inches depth, 5/16 inch web thickness with 1¾-inch flange width.
   - 3.3. The configuration of the channels shall be cold formed with the flanges on the outside resulting in a one-piece frame member with no cross welding of or on the flanges to avoid any possibility of flange stress cracking.
   - 3.4. The tongue shall be equipped with an appropriate heavy-duty ball or pintle hitch.
   - 3.5. The unit shall be adjustable in height above ground level from a minimum of 14 inches to a maximum of 32 inches, permitting practically level towing with a wide range of towing vehicles. (*nominal)*
   - 3.6. The towing hitch shall be bolted to the hitch plate for easy height adjustment and/or conversion to other type hitches.
   - 3.7. A screw-post tongue jack shall be furnished.
   - 3.8. It shall be a heavy-duty type with a minimum load capacity of 7,000 pounds and it shall be side mounted and swing away for positive road clearance while under tow.
4. Running Gear
   - 4.1. The unit shall be equipped with a dual independent rubber torisional suspension having a minimum safe load capacity of 5,200 pounds, electric brakes, modular wheels and ST225/75R15 tubeless ties (Load Range D). This suspension eliminates springs and shackles that rust and reduce ground clearance.
   - 4.2. The melter shall have dual taillights, stoplights, and turn signals
   - 4.3. The lighting shall be ICC approved.
   - 4.4. A license plate holder shall be attached per DOT regulations.
   - 4.5. All melter fluid tanks shall be positioned no lower than the deck level and be mounted on the top of channel frame members to assure proper ground clearance.
   - 4.6. The unit shall be equipped with two safety chains not less than 48 inches of .38 inch coil proof chain, attached to the tongue with a drilled type clevis pin on the end attached to the frame and screw type clevis pin on the opposite end. *(nominal)*
5. Heating Tank
   - 5.1. The material heating tank shall be minimum of 50.5 inches in diameter by 29.5 inches deep having a minimum capacity of 250 gallons at ambient temperature. *(nominal)*

5.2. The tank will have a rear discharge from the pump and rear plug outlet.

5.3. A double boiler type jacket shall create a reservoir that shall hold a minimum of 49 gallons and require no more than 55 gallons of heat transfer oil at 70 degrees Fahrenheit (70^0F). *(nominal)*

5.4. The jacket shall wrap around 100 percent of the outside area of the circular material tank and bottom and allow for complete circulation of the heated transfer oil.

5.5. The tank and jacket shall be made of not less than 3/16 inch rolled sheet steel.

5.6. There shall be one plug to allow the entire heat transfer oil system to be drained.

5.7. The heat transfer oil shall be of ISO grade 68.

6. Expansion Tank

6.1. A sealed expansion tank for heat transfer oil shall be provided to minimize oil oxidation and prevent moisture condensation into the heat transfer oil. Overflow down tubes are unacceptable.

7. Hydraulic System

7.1. The hydraulic system shall incorporate a single hydraulic pump to power the agitation and pumping system.

7.2. All valves shall be solenoid operated by toggle switch and wand handle switch.

7.3. The controls will allow for bi-directional operation of the sealant pump.

7.4. A flow contract valve will be mounted on the rear of the unit to allow the operator to adjust the pump operational speed.

7.5. The minimum 26-gallon hydraulic tank *(nominal)* will be equipped with an internal 10-micron full flow filter.

7.6. The filter shall be equipped with a restriction indicator to indicate the need for service.

7.7. A sight gauge level indicator equipped with a thermometer to measure oil temperature will be mounted on the tank where it is easily viewed.

8. Insulation

8.1. The heating tank shall be insulated with a minimum a 1-½-inch thick high temperature ceramic insulation and covered by a 22 gauge steel outer wrapper.

8.2. Fiberglass and rock wool insulation are unacceptable due to their moisture retention properties resulting in a significant loss in insulating value over an eighteen-month period.

9. Loading Hatch

9.1. A low profile angled lid opening for loading shall be required at the top of the material tank and shall be located on the curbside of the machine for operator safety.

9.2. The loading height shall be a minimum of 50 inches and shall not exceed 59 inches for correct ergonomic lifting and fume exposure. This will allow the operation of the equipment, including sealant loading, from curbside. *(nominal).*

9.3. Loading systems that require the operator to step onto the melter are unacceptable.

9.4. The opening shall have a minimum area of 384 square inches, while not exceeding 400 square inches in order to prevent heat loss, and shall be hinged to allow placement of a block of sealant onto lid and closure of lid for easy, anti-splashing loading. *(nominal)*

9.5. The loading hatch shall be easily adaptable for the addition of a retrofit powered loading conveyor with ant-splash tower.

10. Heating System

10.1. The heat transfer oil is heated by one 290,000 BTU maximum high efficiency forced air diesel fired burner directly at the bottom of the heat transfer oil tank.

10.2. The total area exposed to the burner shall be a minimum of 7,655 square inches. *(nominal)*

10.3. The material tank shall have a minimum of 6,632 square inches of contact with the heat transfer oil. *(nominal)*

10.4. No other mechanical circulation of the heat transfer oil by pump shall be accepted. This provides for a melt rate of 1,700 pounds per hour.

11. Ignition of Burner

11.1. The burner shall be lit by a constant duty high voltage transformer powering an electric spark igniter.

11.2. This igniter shall work in conjunction with a sensor that detects a lack of burn or ignition and shuts down the fuel supply.

11.3. The thermostat controls is located on the curbside of the machine for operator safety.

12. Integrated Control System

12.1. The melter applicator shall have electronic thermostat controls that will automatically regulate hot oil, material and hose temperatures and in turn display these temperatures on digital readouts.

12.2. The controls shall operate at temperature ranges needed for proper application of sealant.

12.3. The controls shall be activated by a single power switch, which will then turn on the agitator and pump at the proper time by use of interlocks.

12.4. The interlock for the agitation system will not allow the agitator to be activated until the material temperature reaches a minimum 275 degrees Fahrenheit (275^0F) and the interlock for the pumping system will not allow the pump to be activated until the hose temperature reaches minimum 325 degrees Fahrenheit (325^0F).

12.5. All temperature controls shall be contained in a single weatherproof control box.

12.6. This control box shall also contain the engine ignition controls, hour meter and any engine gauges.

13. Drive and Drive Controls

13.1. The motive force to the agitator and material pump shall be hydraulic motor driven by a single hydraulic pump.

13.2. An adjustable hydraulic valve shall control the rotational speed of the agitator.

13.3. The drive controls governing the speed of the material pump shall be controlled electronically from the rear of the machine.

13.4. The material pump will have infinite speed control and is electronically actuated by a toggle switch on the control panel or a switch on the hand wand.

14. Agitation
    14.1. A hydraulically driven full sweep vertical agitator with two opposing horizontal paddles and vertical risers attached to the ends shall mix the sealant material. This feature ensues that material remains in complete suspension and that the hot material stays in the lower area of the tank and does not get splashed or thrown to the upper areas of the tank.
    14.2. The agitation system shall be chain driven from the hydraulic motor to the agitator.
    14.3. The agitator rotates in both directions.
    14.4. For additional safety the agitator will shut off automatically when the loading hatch is opened.
15. Bi-Directional Variable Speed Pumping Unit
    15.1. A hardened steel gear pump is located in the center of the material tank attached to the bottom of the tank.
    15.2. Pumping of material is controlled by a switch on the hand wand and output is controlled hydraulically.
    15.3. The pump and agitator drive shaft stands vertically attached to two motors on the top surface of the tank.
    15.4. One motor rotates an axial tube having radial mixing blades at the chamber bottom.
    15.5. The second motor drives a coaxial shaft running through the tubes to the pump.
    15.6. Sealant pumping shall be on demand.
    15.7. When pumping stops, all line pressure and sealant flow shall stop.
    15.8. No external plumbing recirculation back into the tank is acceptable.
    15.9. No internal or external valves shall be used in the pumping and sealant delivery system.
    15.10. The pump shall be capable of delivering sealant at a rate that exceeds the melt rate of the unit.
16. Active Pump Protection
    16.1. The pump shall be completely encircled by a protective screen.
    16.2. The screen shall not allow anything larger than ½ inch in size to pass from the sealant tank into the pump suction port.
    16.3. The screen shall continuously rotate 360 degrees around the pump whenever the sealant agitator is engaged.
    16.4. The active screen will protect the pump from foreign object damage and will self-clean as it rotates around the sealant pump and suction port.
17. Sealant Hose and Applicator Wand
    17.1. Both the hose and wand are heated by low voltage electric current and are temperature regulated.
    17.2. Due to weight and safety considerations, an oil-jacketed hose is unacceptable.
    17.3. The hose shall be specifically manufactured for handling liquid asphalt products up to 500 degrees Fahrenheit (500^0F) at 500 psi working pressure.
    17.4. Hose shall not be less than eighteen feet (18') in length.
    17.5. For maximum operator safety hose shall be made of stainless steel braid with a ¾ inch inside diameter and shall be Teflon lined.
    17.6. The hose shall be heavily lined to prevent hot material from leaking out.
    17.7. Total diameter of the hose shall be not greater than 2-¼-inch.
    17.8. The total weight of the hose shall not exceed 20 pounds.
    17.9. The hose is to be wrapped with a minimum of three electrical wires with terminal ends.
    17.10. The wires will be capable of heating the hose to 400 degrees Fahrenheit (400^0F) in less than 45 minutes and have variable temperature control capability.
    17.11. The hand want shall be constructed of steel with sufficient strength to withstand normal day-to-day operation.
    17.12. Material flow is controlled by a trigger switch.
    17.13. For greater operator mobility, the connection between the wand and hose shall be through a 360-degree swivel.
    17.14. There shall be no obstruction or valves between the material pump and the wand end.
    17.15. The hose is supported by a 6-foot boom, which swivels side to side on dual pillow block bearings.
    17.16. The boom is centered at the rear of the machine.
18. Engine
    18.1. The unit shall be equipped with a diesel engine with the following specifications.
        18.1.1. Electric start.
        18.1.2. Three cylinder 25.4 HP *(nominal)*
        18.1.3. Full flow oil filter
        18.1.4. Constant speed mechanical governor
        18.1.5. Water cooled
    18.2. The engine speed is preset at the factor for optimal alternator output to power the heated wand and hose.
    18.3. Engine shutdown package (low oil pressure and high temperature)
19. Fuel Capacity

19.1. The melter shall have a 32-gallon diesel fuel tank for operator of the entire unit. *(nominal)*

19.2. The unit will be capable of operating for a minimum of 12 hours on one tank of fuel. *(nominal)*

19.3. The tank shall be equipped with full-length sight gauges for fuel level indication protected in a steel cover.

20. Paint

20.1. All painted surfaces shall be coated with Dupont two-part epoxy primer and Dupont two-part urethane paint applied by Dupont certified painters. *(or equal)*

21. Training

21.1. An authorized, factory-trained representative will be made available for a full day of on-site training.

21.2. At this training session a complete operational, mechanical and safety overview will occur.

21.3. The manual will be viewed and discussed with all concerned personnel.

21.4. The vendor representative will be available at that time for "on the job" safety and field training.

22. Safety and Training Manuals

22.1. The following manuals will be provided to the City in electronic and/or hardcopy format, Safety Manual, Mechanical Manual, Operational Manual.

23. Parts

23.1. Awarded vendor shall make available any necessary parts within a 48-hour period from notice or order.

24. Warranty

24.1. Twelve month full machine factory warranty. No deductible

24.2. Warranty work shall be performed at an Albuquerque metro area factory authorized warranty repair facility.

OPTIONS

	DESCRIPTION	MODEL NO.		PRICE *(quantity 1 ea.)*
A.	2-5/16 inch ball hitch	20018	$	195.00
B.	2-inch pintle hitch	20016	$	193.88
C.	2-inch ball hitch	20017	$	142.80
D.	3-inch pintle hitch	20014	$	198.88
E.	Sealant tip adapter	27114	$	75.00
F.	3-inch applicator disk	27162	$	36.00
G.	V-shaped squeegee	27245	$	109.54
H.	½-inch round sealing tip	27171	$	26.00
I.	Cold air lance	42648	$	205.54
J.	Hot air lance	32259	$	884.00
K.	Extra electric hose	51775	$	1,800.00
L.	Extra hydraulic filter	44805	$	40.00
M.	Lockable battery cover	24086	$	197.64
N.	Lockable engine cover	45535	$	1,503.32
O.	Fire extinguisher mounted on the trailer frame – 20#	26050/26061	$	359.00
P.	Tool box	26098	$	154.50
Q.	Mast mounted strobe light	24095 K	$	384.08
R.	Auto loader	60000 AL	$	7,700.00
S.	Overnight heater (2 required)	24190	$	419.20
T.	Custom paint	29770	$	950.00
U.	Hitch extension, 29 inches	20140	$	742.00
V.	Hitch extension, 34 inches	20150	$	834.22

OPTIONS TOTAL	$	
BASE PRICE	$	42,500.00
TOTAL COST PER UNIT	$	
QUANTITY		
TOTAL COST	**$**	